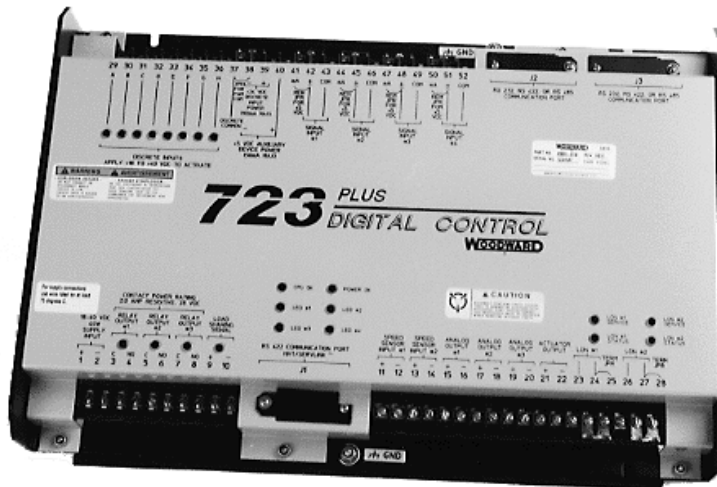


# 723PLUS Digital Control Standard Applications



- Programmed and configurable for off-the-shelf control and monitoring in power generation, industrial engine, process, and marine applications
- 32-bit microprocessor
- 1 Watch Window or hand held programmer communication port
- 2 serial ports with Modbus<sup>®</sup>\* and ServLink protocol choices
- 2 local operating network (LON<sup>®</sup>\*\* ) channels
- Digital reference and ramps for speed, pressure, temperature, etc.
- Configurable update time groups—10 to 80 milliseconds
- UL and cUL listed
- CE Compliant

## APPLICATIONS

The Woodward 723PLUS Digital Control manages and controls reciprocating engines (gas, diesel, or dual fuel) used in power generation, marine propulsion, and industrial engine and process markets. Standard application software is available which provides a variety of off-the-shelf control solutions for these markets. The following is a listing of the standard (level 1) programmed and configurable 723PLUS Digital Controls:

Power Generation	Marine	Industrial
<b>8280-412</b> DSLC Loadshare, LV	<b>8280-418</b> Single Engine Propulsion—Low Speed, LV	<b>8280-410</b> Speed Control, LV
<b>8280-413</b> DSLC Loadshare, HV	<b>8280-419</b> Single Engine Propulsion, LV	<b>8280-411</b> Speed Control, HV
<b>8280-414</b> Analog Loadshare, LV	<b>8280-422</b> Dual Engine Mechanical Load Share—Low Speed, LV	<b>8280-424</b> Performance Control '424', LV
<b>8280-415</b> Analog Loadshare, HV	<b>8280-423</b> Dual Engine Mechanical Load Share, LV	<b>8280-598</b> Performance Control '598', LV
<b>8280-416</b> DSLC/MSLC Gateway, LV	<b>8280-1042</b> Single Engine Propulsion—DSLCL Input, LV	<b>8280-464</b> Process Control, LV
<b>8280-417</b> DSLC/MSLC Gateway, HV		<b>8280-465</b> Process Control, HV
<b>8280-466</b> DSLC Loadshare—Low Speed, LV		
<b>8280-467</b> DSLC Loadshare—Low Speed, HV		

## PROGRAMMING

The controls listed above are standard pre-programmed 723PLUS Digital Controls. Woodward and its authorized Distributors can provide custom programming for the 723PLUS/828 Digital Control to meet the need for specialized functions in process, generator plant, engine, and marine applications. The custom version may be a variation of standard control software or totally new. The custom version may be used as a unit control or as a system control for such things as sequencing, load shedding, heat recovery management, and system monitoring and alarming.

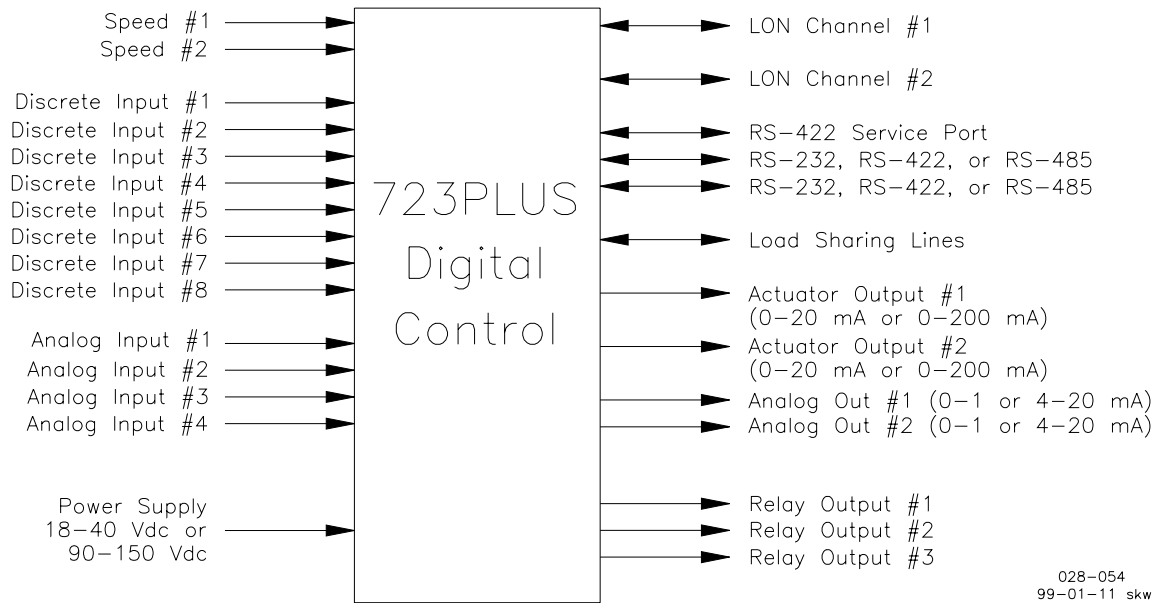
## ADJUSTMENTS

Adjustments may be made quickly and easily through the Watch Window or Control View PC Interface\* or an optional hand held programmer. Both adjustment methods are menu-driven and record all set points. More information is on the Industrial Controls section of our website ([www.woodward.com](http://www.woodward.com)).

\*—Not supported on 8280-1042

\*—Modbus is a trademark of Modicon, Inc.

\*\*—LON is a trademark of Echelon Corp.



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**723PLUS Control Block Diagram**

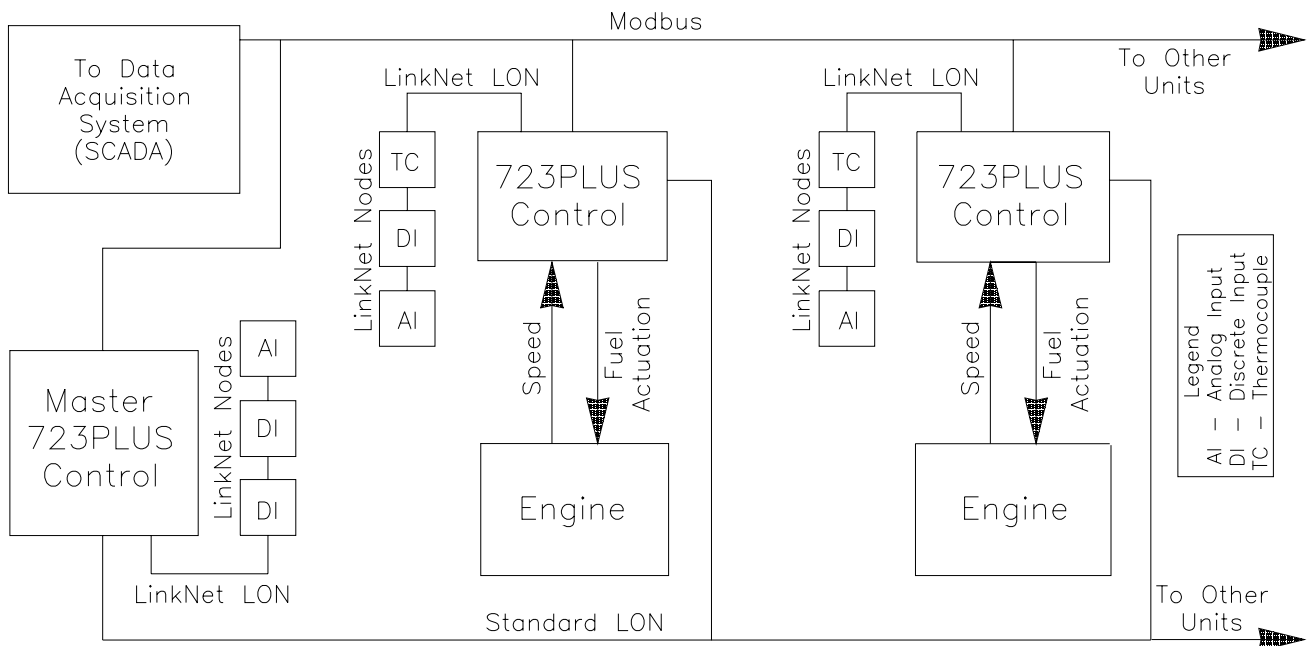
## COMMUNICATIONS

The 723PLUS Digital Control provides two separate serial interfaces for RS-232, RS-422, or RS-485 communications. In some models both ports feature an industry-standard Modbus protocol (ASCII or RTU) that can interface to a Modbus master device such as a Human/Machine Interface (HMI). In other models one port features an industry-standard Modbus protocol (ASCII or RTU), and the other port features Woodward ServLink protocol for a Watch Window or Control View PC interface. Baud rates are tunable to meet specific user requirements.

The 723PLUS control can also communicate using the local operating network (LON) protocol for digital communications. The 723PLUS/828 control I/O ports may be expanded through LinkNet<sup>®</sup> nodes. Typical LinkNet nodes include thermocouple, RTD, analog, and discrete type I/O.

## SELF DIAGNOSTICS

The 723PLUS Digital Control has integrated diagnostics to determine the control integrity. Memories, processor, and baseline power supply monitoring are included in the diagnostic tests.



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**Typical 723PLUS System Diagram**

# SPECIFICATIONS

Low Voltage Model	18–40 Vdc (24 or 32 Vdc nominal)
High Voltage Model	90–150 Vdc (125 Vdc nominal)
Power Consumption	40 W nominal
Inrush Current (Low Voltage Model)	7 A for 0.1 ms
Inrush Current (High Voltage Model)	22 A for 15 ms

## Inputs

### Speed Signal Inputs (2)

Speed Input Voltage	1.0–50.0 Vrms
Speed Input Frequency	Magnetic Pickup: 400 Hz to 15 kHz Proximity Switch: 30Hz to 15 kHz
Speed Input Impedance	10 k $\Omega$ $\pm$ 15%

Note: EU Directive compliant applications are not currently able to use proximity switches due to the sensitivity of the switches.

### Discrete Inputs (8)

Discrete Input	24 Vdc, 10 mA nominal, 18–40 Vdc range
Response Time	10 ms $\pm$ 15%
Impedance	2.3 k $\Omega$

Note: For Lloyd's Register applications, use only control-supplied power.

### Analog Inputs (4)

Analog Input	$\pm$ 5 Vdc or 0–20 mA, transducers externally powered
Common Mode Voltage	$\pm$ 40 Vdc
Common Mode Rejection	0.5% of full scale
Accuracy	0.5% of full scale

### Load Sharing Input

Analog Input	0–4.5 Vdc
Common Mode Voltage	$\pm$ 40 Vdc
Common Mode Rejection	1.0% of full scale
Accuracy	1.0% of full scale

## Outputs

### Analog Outputs 0–1 or 4–20 mA (2)

Analog Output	0–1 mA or 4–20 mA (max. 600 $\Omega$ load)
Accuracy	0.5% of full scale

### Analog Outputs 0–20 or 0–200 mA (2)

Analog Output	0–20 mA (max. 600 $\Omega$ load) or 0–200 mA (max. 70 $\Omega$ load)
Accuracy	0.5% of full scale

### Relay Contact Outputs (3)

Contact Ratings	2.0 A resistive @ 28 Vdc; 0.5 A resistive @ 125 Vdc
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## Environment

Operating Temperature	–40 to +70 $^{\circ}$ C (–40 to +158 $^{\circ}$ F)
Storage Temperature	–55 to +105 $^{\circ}$ C (–67 to +221 $^{\circ}$ F)
Humidity	95% at +20 to +55 $^{\circ}$ C (+68 to +131 $^{\circ}$ F) Lloyd's Register of Shipping Spec. Humidity Test 1
Mechanical Vibration	Lloyd's Register of Shipping Spec. Vibration Test 2
Mechanical Shock	US MIL-STD 810C Method 516.2, Proc. I, II, V
EMI/RFI Specification	Lloyd's Register of Shipping Specification EN 50081–2 and EN 50082–2

## Compliance

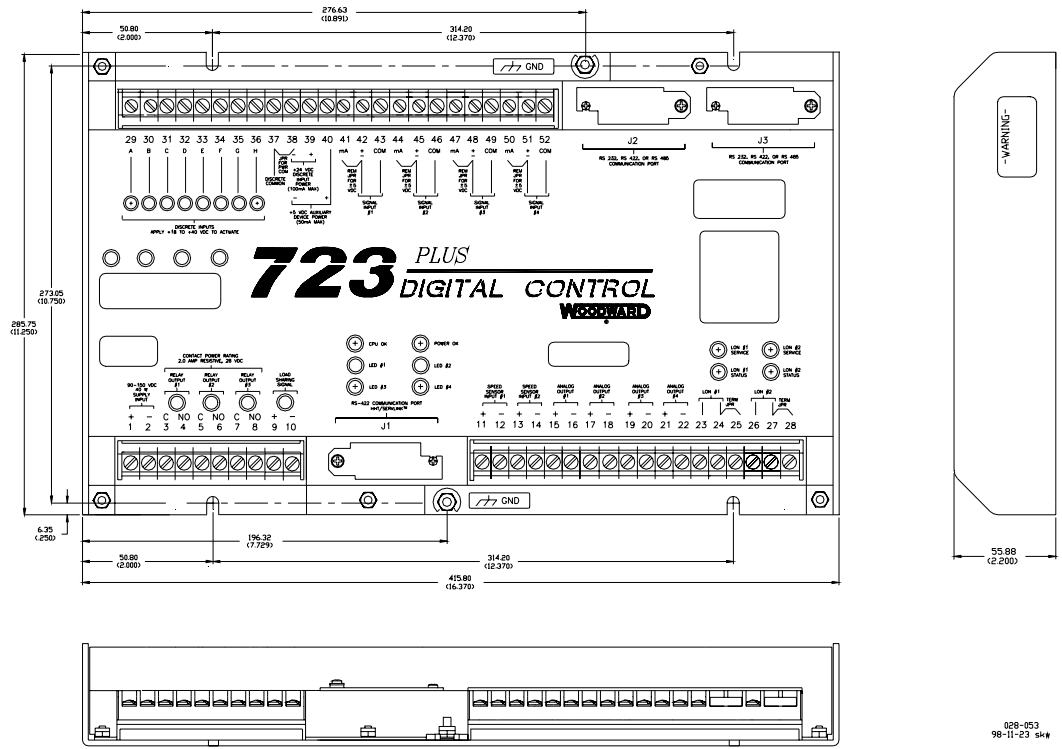
UL/cUL Listing	Class 1, Division 2, Groups A, B, C, D
American Bureau of Shipping (ABS)	Certified for use on ACC, ACCU, and ABCU Classed Vessels (low voltage models only)
Bureau Veritas	Certified for use on AUT-UMS, AUT-CCS, AUT-PORT, and AUT-IMS Classed Vessels
Det Norske Veritas	Certified for marine applications. Temperature Class B, Humidity Class A, Vibration Class B, and Enclosure Class B
Germanischer Lloyd	Certified for Environmental Class C
Lloyd's Register of Shipping	Certified for use in ENV1, ENV2, and ENV3 as defined in LR Type Approval Test Specification No.1, 1996
Registro Italiano Navale	Certified for compliance with RINA Type Approval System
European Union (EU)	Compliant with EMC Directive 89/336/EEC and Low Voltage Directive 72/23/EEC

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[www.woodward.com](http://www.woodward.com)



**723PLUS Digital Control Outline Drawing**  
 (Do not use for construction)

Hardware Manual 02877

## DECLARATION OF INCORPORATION

In accordance with the EMC Directive 89/336/EEC and its amendments, this controlling device, manufactured by Woodward Governor Company, is applied solely as a component to be incorporated into an engine prime mover system. Woodward Governor Company declares that this controlling device complies with requirements of EN50081-2 and EN50082-2 when put into service per the installation and operating instructions outlined in the product manual.

**NOTICE:** This controlling device is intended to be put into service only upon incorporation into an engine prime mover system that itself has met the requirements of the above Directive and bears the CE mark.

For more information contact:

This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward Governor Company contractual or warranty obligation unless expressly stated in a written sales contract.

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